STANDARD OPERATING PROCEDURE

No. 2420.4G

FIELD CHAIN OF CUSTODY FOR ENVIRONMENTAL SAMPLES

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Attachments

A. Purpose

The purpose of this Standard Operating Procedure (SOP) is to establish uniform policies and procedures for the field personnel to maintain an accurate written record of environmental samples from the time of sample collection through their acceptance by the Laboratory Technology and Analysis Branch (LTAB) for analysis. The custody procedures utilized within the Science and Technology Center (STC) for storing and maintaining custody through the analytical processes are not covered in this SOP. The storage and security of all environmental samples analyzed within the Environmental Sciences and Technology Division (ENST) are processed, in accordance with SOP 2420.2, "Storage, Security, and Sample Sign-Out of Environmental Samples," (ref. 1).

B. Applicability

The policies and procedures outlined in this SOP are applicable to the Region 7 U.S. Environmental Protection Agency (EPA), the ENST staff including the onsite Region 7 Environmental Services Assistance Team (ESAT) contractor, state/local agencies, and/or EPA field contractors who collect environmental samples for analyses by the LTAB staff or external contract laboratories.

C. Summary of Procedures

As a requirement of any activity which may be used to support litigation proceedings, the validity of any data introduced into evidence must be clearly demonstrated. In the case of samples collected in support of an enforcement case, it must be clearly documented that the sample introduced into evidence is, in fact, the same sample collected and/or that the analytical data offered into evidence accurately represent the environmental conditions at the time of sample collection. It is imperative that there is adequate proof to demonstrate the transfer, storage, or analysis of the sample, and that the analytical results were obtained from the same sample collected. Therefore, an accurate written record must be maintained to track the possession and handling chain of custody (COC) record (see Attachment 1) of each sample from the moment of sample collection through analysis and its introduction into evidence.

By definition, a sample is in "custody" if:

1. It is in one's actual physical possession; or
2. It is in one's view, after being in one's physical possession; or
3. It is locked up so no one can tamper with it, after being in one's physical possession; or
4. It is placed in a designated secured area

D. Definitions/Acronyms

ASR	Analytical Services Request
CLP	Contract Laboratory Program
COC	Chain of Custody Record
COR	Contracting Officer Representative
ENST	Environmental Sciences and Technology Division
EPA	U.S. Environmental Protection Agency
ESAT	Environmental Services Assistance Team
FedExp	Federal Express
LABS	Laboratory Section
LTAB	Laboratory Technology and Analysis Branch
LIMS	Laboratory Information Management System
PM	Project Manager (or designee [e.g. EPA field contractor])
QC	Quality Control
REST	Region 7 Environmental Sample Testing
RSCC	Regional Sample Control Coordinator (or designee)
SOP	Standard Operating Procedure
SRN	Sample Receipt Notice
STC	Science and Technology Center
UPS	United Parcel Service

E. Personnel Qualifications

The ENST personnel performing this task should have a basic knowledge of the LTAB sample and records management procedures.

F. Responsibilities

1. Project Manager (PM)

   a. The PM submits a completed Analytical Services Request (ASR) to the LTAB 30 days before initiation of the sampling event.

   b. The PM ships and/or delivers the properly collected, preserved, labeled, and packaged samples to the LTAB.

   c. The PM is responsible for the accuracy and completeness of all accompanying paperwork (e.g. COC record, sample tags and field sheets). If any changes are required as a result of the sampling (e.g. sample number changes, additional analyses, samples not collected, quality

control [QC] code additions), the PM must see that these corrections are made on all paperwork.

d. All changes made to the paperwork (e.g. COC record, sample tags or field sheets) must also be made to the information contained in the Region 7 Laboratory Information Management System (LIMS). It is the responsibility of the PM to supply correct information so that the Regional Sample Control Coordinator (RSCC) can properly process the samples into the LIMS. Whenever possible, any changes are to be made prior to the delivery of the samples. If necessary, the RSCC will assist the PM when changes are noted prior to sample collection/delivery, concurrent with sample delivery or after.

e. The PM must be available to help resolve any problems with the samples or must designate someone to do this for them in their absence. This requires that when delivering samples, the PM stays with the RSCC to answer any questions. Samples must not be just dropped off (unless after normal business hours).

f. The PM calls and/or emails the RSCC close to the anticipated delivery date and/or time that samples are sent by commercial carrier (e.g. Federal Express [FedExp] or United Parcel Service [UPS]) to confirm that samples have arrived and to answer any questions the RSCC may have.

2. RSCC

a. The RSCC opens the ice chest (cooler) and utilizing the Infrared Thermometer, checks the cooler temperature in three (3) different locations of the cooler (e.g. top, middle, and bottom of the cooler), records the temperature range (in degrees Celsius) and dates with initials in the last row of the "Receiving Laboratory Remarks/Other Information" column on the COC record (e.g. Cooler temperature received between 2-4 degrees Celsius, NR 1/25/2010).

b. The RSCC verifies the presence of all the samples, checks all the documentation and signs the COC record after all the paperwork is complete and accurate.

c. The RSCC works with the PM to obtain the correct information and puts the amended information into LIMS.

d. The RSCC notifies the PM of problems which prevent the acceptance of the samples. The RSCC maintains all samples received in a secure location including those pending reconciliation of problems.

e. The RSCC logs samples into LIMS, in accordance with SOP 2420.1, "STC Procedures for Sample Receipt and Log-In," (ref. 2) and is responsible for the proper storage, tracking and/or distribution of the samples to the external contract laboratories (this includes while samples are in transit to the external contract laboratories).

f. The RSCC prepares an electronic Sample Receipt Notice (SRN) message from LIMS when each batch of samples is received and routes it to the appropriate LTAB staff as designated on the SRN. This could include the:

(1) LTAB Chief;
(2) Laboratory Section (LABS) Chief;
(3) LIMS Administration Team;
(4) Contract Laboratory Program (CLP) Contracting Officer Representative (COR);
(5) Region 7 Environmental Sample Testing (REST) COR;
(6) ESAT personnel; and
(7) Specific ENST analysts.

G. Procedures

1. In order to ensure adequate control and documentation of the collected samples, the number of personnel handling the samples from the time of sample collection through delivery to the LTAB should be limited.

2. The following actions must be accomplished in order to ensure that the relationship between the actual sample and the description of the sample is clearly, completely and accurately established, and that the custody of the sample is initiated from the time of actual sample collection.

a. A unique number is assigned to each sample, in accordance with SOP 2420.5, "Identification, Documentation, and Tracking of Samples," (ref. 3) in order to relate the descriptive information to a physical sample. If a sample consists of several containers for analysis of different parameters from the same physical sample, the same number is used for each portion of the original sample.

b. A sample tag is securely attached to each container at the time of the sample collection, in accordance with SOP 2420.5.

c. The custody of the sample is initiated at the time of collection by ensuring that the sample is in the sample collector's physical possession

or view at all times or is stored in a locked place where no one can tamper with it.

3. The sampler is responsible for the collected samples until they are delivered to the STC, properly transferred to the RSCC or if after hours, are placed in the designated refrigerator or freezer located in L55.

4. Samples may be delivered to the STC by the PM, the sampler, or EPA contractor via commercial carrier (e.g. FedExp or UPS).

a. The sampler or EPA contractor conveyed samples are those transported and delivered to the STC. The coolers may be sealed or unsealed, but the sampler or EPA contractor must ensure that they are secured in the transport vehicle when they are not physically with the vehicle.

b. Samples may be shipped via commercial carrier (e.g. FedExp or UPS) from the field to the STC. The cooler and sample containers must be sealed at the time of shipment.

5. Samples are considered to be sealed when they are packaged in such a manner that would prohibit tampering or readily reveal any tampering, if it occurred.

a. A properly completed US EPA Official Sample Seal (EPA Form 7500-2) (see Attachment 2) may be used to secure the individual sample container, as appropriate, to meet specific regulatory program requirements. These custody seals must be signed and dated by the sampler or EPA contractor when used to seal individual sample containers.

b. The use of a custody seal must be used to secure the openings of boxes, crates, plastic bags, ice chests or coolers containing samples. These custody seals must be signed and dated by the sampler or EPA contractor when used to seal the shipping containers.

6. The COC record (see Attachment 1) is initiated at the time of sample collection and must accompany all samples. The COC record is utilized to document the

transfer of a sample from the sampler or EPA contractor to receipt by the RSCC.

The LTAB instructions for the completion of the COC record are outlined in Attachment 3.

a. The transfer of possession of the samples would occur when the sampler or EPA contractor delivers the samples to the STC or packs the samples in a sealed shipping container for shipment to the STC via commercial carrier (e.g. FedExp or UPS).

b. The original COC record will accompany the samples to the STC. When the samples are conveyed by the sampler or EPA contractor, the COC record may be hand carried. When the samples are delivered via commercial carrier, the COC record must be placed in a plastic document enclosure which is enclosed in the shipping container.

7. When samples are delivered to the STC after duty hours, the samples, field sheets and the COC record can be placed in the refrigerator or freezer located in L55 until acceptance by the RSCC, in accordance with SOP 2420.1.

8. Once the RSCC has accepted the samples at the STC, the responsibility for custody of the samples transfers to the RSCC. Custody of the samples is maintained through analysis with the laboratory's internal control procedures, in accordance to SOP 2420.2.

9. The original COC record and coordinating field sheets are obtained by the RSCC at the STC for inclusion with the permanent site analytical data file and are included with the final data transmittal sent to the PM.

10. The yellow copy of the COC record is returned to the PM for inclusion in their appropriate activity files when samples have been accepted by the RSCC.

11. The yellow copy of the COC record can be given to the person relinquishing the samples.

12. The US EPA Official Sample Seal (EPA Form 7500-2) (see Attachment 2) associated with the specific samples or sample shipments are not retained.

H. Quality Assurance/Quality Control

A written tracking (COC) record is maintained from the time that the sample is collected and its transfer from the collection site to its laboratory destination. This COC record is used to demonstrate that the sample possession has been secured and limited. The signed and dated US EPA Official Sample Seal (EPA Form 7500-2) (see Attachment 2) is placed over the access points of the sample shipment demonstrate that the contents of the samples have not been tampered with or compromised.

I. References

1. SOP 2420.2, "Storage, Security and Sign-Out of Environmental Samples"
2. SOP 2420.1, "STC Procedures for Sample Receipt and Log-In"
3. SOP 2420.5, "Identification, Documentation, and Tracking of Samples"

J. Summary of Changes

Version x → y	Description of Change	Justification
2420.4F to 2420.4G	Changed ENSV to ENST Changed ENSV/CARB to ENST/LTAB Changed IOCS/ORCS to LABS	Updated organization names following laboratory reorganization.
2420.4F to 2420.4G	Grammar edits, updated outline format.	Better readability.
2420.4F to 2420.4G	Reordered references and attachments to match referencing within the text.	Better readability.
2420.4F to 2420.4G	Changed Region 7 Analytical Services Program (RASP) to Region 7 Environmental Sample Testing (REST)	Updated following new Region 7 contract.
2420.4F to 2420.4G	Added Summary of Changes section J.	Added clarification regarding revision history.

Attachment 1

CHAIN OF CUSTODY RECORD
ENVIRONMENTAL PROTECTION AGENCY REGION VII

ACTIVITY LEADER(Print)	NAME OF SURVEY OR ACTIVITY	DATE OF COLLECTION DAY MONTH YEAR	SHEET # of

CONTENTS OF SHIPMENT

SAMPLE NUMBER	TYPE OF CONTAINERS: CUBITAINER	BOTTLE	BOTTLE	BOTTLE	VOA SET (2 VIALS EA)	SAMPLED MEDIA: water	soil	sediment	dust	other	RECEIVING LABORATORY REMARKS/OTHER INFORMATION (condition of samples upon receipt, other sample numbers, etc.)
	NUMBERS OF CONTAINERS PER SAMPLE NUMBER										

DESCRIPTION OF SHIPMENT	MODE OF SHIPMENT
_____ PIECE(S) CONSISTING OF _____ BOX(ES)	_____ COMMERCIAL CARRIER: _____
_____ ICE CHEST(S); OTHER _____	_____ COURIER
	_____ SAMPLER CONVEYED (SHIPPING DOCUMENT NUMBER)

PERSONNEL CUSTODY RECORD

RELINQUISHED BY (SAMPLER)	DATE	TIME	RECEIVED BY	REASON FOR CHANGE OF CUSTODY
☐ SEALED ☐ UNSEALED			☐ SEALED ☐ UNSEALED	
RELINQUISHED BY	DATE	TIME	RECEIVED BY	REASON FOR CHANGE OF CUSTODY
☐ SEALED ☐ UNSEALED			☐ SEALED ☐ UNSEALED	
RELINQUISHED BY	DATE	TIME	RECEIVED BY	REASON FOR CHANGE OF CUSTODY
☐ SEALED ☐ UNSEALED			☐ SEALED ☐ UNSEALED	

7-EPA-9262(Revised 5/85)

Attachment 2

UNITED STATES
ENVIRONMENTAL PROTECTION AGENCY
OFFICIAL SAMPLE SEAL

SAMPLE NO. | DATE

SIGNATURE

PRINT NAME AND TITLE
(Inspector, Analyst or Technician)

SEAL BROKEN BY

DATE

EPA FORM 7500-2(R7-75)

Attachment 3

Instructions for Completing a Chain of Custody (COC) Record

(Note: Each numbered item explains what is to be entered into that particular block moving from left to right, top to bottom of the document.)

1. Activity Leader. Enter the first initial and last name of the EPA Project Manager.

2. Name of Survey or Activity. Enter the Project ID and/or Analytical Services Request (ASR) number (e.g. BMWSPS/4730) for which the samples were collected.

3. Date of Collection. Enter the day, month, and year the samples were collected. When multiple days of sampling occurs, a range of dates (e.g. 12/16-20/2015) can be noted.

4. Sheet. Enter 1 of 1 unless there are more than one total sheets describing the shipment. If multiple sheets, enter the consecutive number of each sheet of the total number of sheets (e.g. 1 of 3, 2 of 3 and 3 of 3).

5. Contents of Shipment.

    a. Enter the specific sample numbers to include the ASR number, number of sample, type of containers per sample number and sampled media in the appropriate column

        (1) The ASR number and the individual sample numbers composing the shipment are entered in the Sample Number column (e.g. 4730-1). If more than one sheet is required, continue on additional sheets. For shipments of a large group of samples, it would be more appropriate and efficient to complete a separate sheet for each shipping container.

        (2) The types of containers for each sample number are entered in the columns provided. The size should be entered above the container type, as appropriate. For Volatiles, the "VOA Set" refers to two = 40 ml vials contained in the pouch which are collected for volatile organics analyses. The container types are modified, as necessary or appropriate, to describe sample containers.

        (3) The sampled media for each sample number will be indicated by placing an "X" in the appropriate column. If the sample media is not listed,

the actual media sampled should be entered in the "Other" column (e.g. wipe, sludge, air, biota, fish, etc.).

b. The "Receiving Laboratory Remarks/Other Information" is to be used by the RSCC to indicate any problems with the shipment or condition of the samples upon receipt; e.g. custody seal on sample container or shipping container broken, a sample container broken in transit, a sample lost due to leakage during shipment, etc. The temperature of the shipping coolers(s) is/are to be recorded in the lower area of this column on the only or final page of the COC record. This column may also be used to record other sample numbers for cross-referencing purposes (e.g. external sample number).

c. After entering all of the above information, the total contents of the shipment should be indicated by marking out any remaining lines in this section. This can be accomplished either by drawing a line across the next line after the last entry and entering "Activity/ASR Not Complete" or "Activity/ASR Complete," or by drawing a line across the next blank line or diagonally across the remaining lines in the section and entering "Activity/ASR Not Complete" or "Activity/ASR Complete."

6. Description of Shipment. Enter the total number of pieces (e.g. samples or sample containers) packed in the total number of shipping containers (e.g. coolers, boxes or other, which comprise the total shipment) (e.g. 12 pieces in 2 coolers or 24 pieces in 2 boxes).

7. Mode of Shipment. Indicate the mode by which the samples are shipped to the STC by placing an "X" in the appropriate line preceding the specific mode in this block. If the shipment is via commercial carrier, the name of the carrier (e.g. FedExp or UPS) and the shipping document number (e.g. airbill) should be entered in the appropriate lines provided. This information may be entered by the sample shipper (sampler or individual to whom the sampler relinquished the samples) or the shipment receiver (lab sample custodian), as appropriate.

8. Personnel Custody Record. This portion of the form provides the record of changes of custody of the shipment (sample or group of samples) from the sampler to the laboratory. To provide an adequate written record, all of the blocks should be completed as described below.

a. The sampler will sign the first "Relinquished By Sampler" block when the samples are presented to another individual or commercial carrier.

(1) An "X" should be entered in the appropriate block to indicate whether the shipment is sealed or unsealed with a piece of completed custody seal tape, the date and time when the samples are relinquished should be entered in the appropriate blocks, and the reason for change of custody (e.g. transport to STC, receipt by STC, Analysis, etc.) should be entered in the appropriate block.

(2) If the sampler is presenting the samples to a commercial carrier for shipment, the name of the carrier should be entered in the next available "Received By" block. The signature of a representative of the carrier is not required.

b. Each individual who received the shipment of samples will sign the next available "Received By" block and enter an "X" in the appropriate block to indicate whether the samples were received sealed or unsealed with a piece of completed custody seal tape. If the samples were shipped via commercial carrier, the individual receiving the samples (e.g. RSCC at the STC) should enter the date and time the samples were received and the reason for change of custody (e.g. Analysis or Receipt by the STC) in the appropriate blocks.

c. Each successive individual who relinquishes custody of the samples will sign the next available "Relinquished By Sampler" block, enter an "X" in the appropriate block to indicate whether the sample shipment is sealed or unsealed with a piece of completed custody seal tape, enter the date and time when custody is relinquished and enter the reason for change of custody in the appropriate blocks.